GIS Data Sources

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Introduction: Data Storage

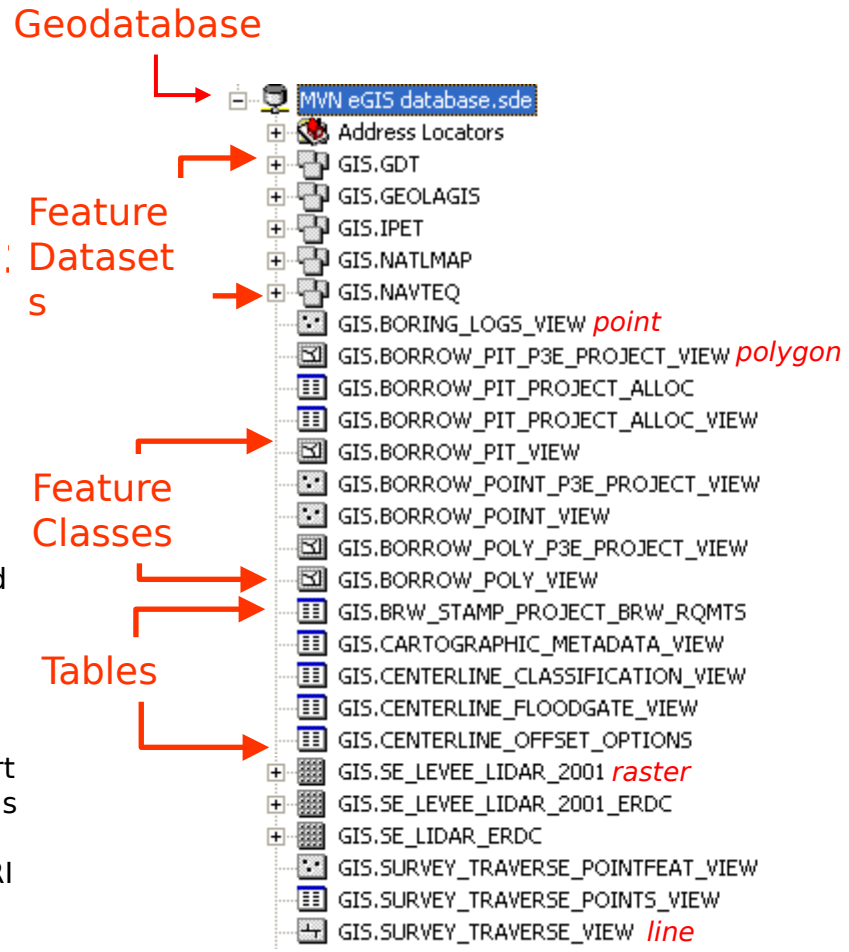
The Geodatabase

Enterprise GIS is defined as the *integration of geospatial technology infrastructure to deliver spatial information products, services and standard datasets to all business elements and processes of the organization*.

The concept of enterprise GIS (eGIS) is taking a complete organizational approach to sharing, using, and managing spatial information.

The geodatabase is the foundation for an eGIS. It is a proprietary (ESRI/ArcGIS) storage format that represents geographic features and attributes as objects and is hosted inside a relational database management system. It is organized into a variety of feature datasets and sub-divided into feature classes. The icon that prefaces the data record provides a preview into the type for the data– point, line, polygon, or raster.

The Buffalo District uses an SQL Express platform to support the District's enterprise GIS program. Data contained in this geodatabase can be accessed using ESRI's ArcCatalog or ArcMap software. A license is required for access to the ESRI software. To obtain the license connectivity information, please contact the LRB EGIS team.



Introduction: Data Types

Feature Class

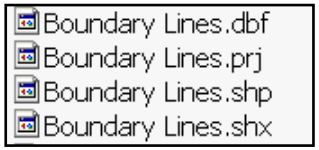
A collection of geographic features with the same geometry type (such as point, line, or polygon), the same attributes, and the same spatial reference. Feature classes can stand alone within a geodatabase or be contained within shapefiles, coverages, or other feature datasets. Feature classes allow homogeneous features to be grouped into a single unit for data storage purposes. For example, highways, primary roads, and secondary roads can be grouped into a line feature class named "roads".

Shapefile

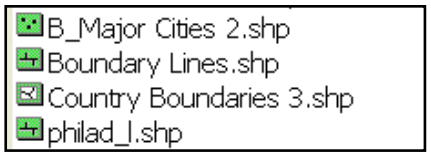
A vector data storage format for storing the location, shape, and attributes of geographic features. A shapefile is stored in a **set of related files and contains one feature class**.

Layer Files

In ArcGIS, a **reference to a data source**, such as a coverage, geodatabase feature class, raster, and so on, that defines how the data should be displayed on a map (**legends & labeling parameters**). Layers can also define additional properties, such as which features from the data source are included. Layers can be stored in map documents (.mxd) or saved individually as layer files (.lyr). Layers are conceptually similar to themes in ArcView 3.x.



In Windows Explorer, you can see all of the file types that make up the entire shapefile.



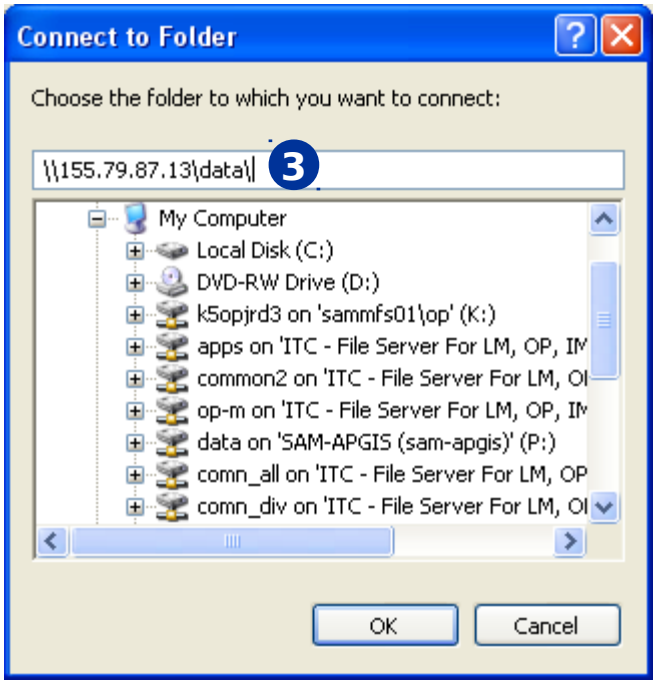
In ArcCatalog or ArcMap, shapefiles are displayed only as one file. Notice the various green icons to denote points, lines, polygons. Geodatabase feature classes are displayed the same way, except without the .shp extension.

In ArcCatalog or ArcMap, layer files are displayed only as one file. Notice the various yellow diamond icons to denote points, lines, polygons. Remember, layer files only store a reference to the source data.

Exercise A: Accessing Buffalo District GIS Data

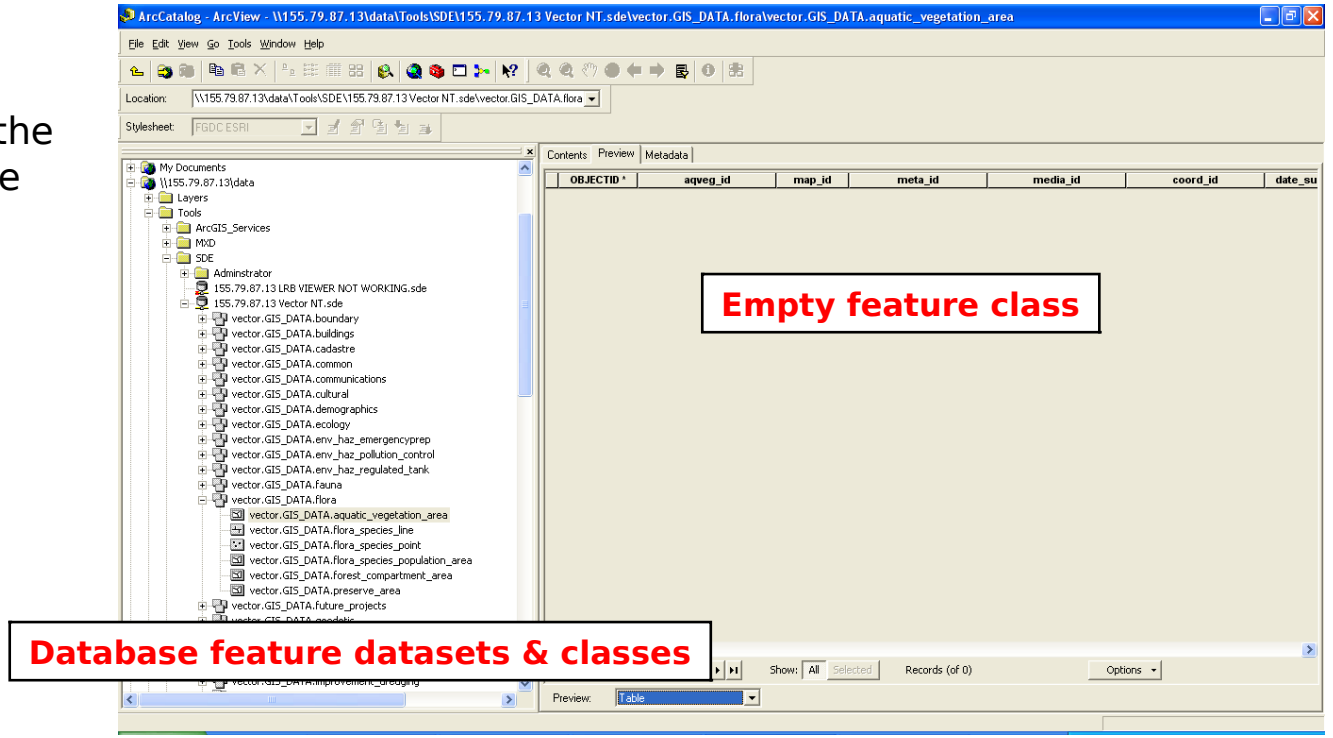
1. Start ArcCatalog:

   Start → Programs → ArcGIS → ArcCatalog.
2. Click on the **Connect to Folder** button.
3. Make a connect to the LRB GIS data directory: enter **\\155.79.87.13\data**
4. In the navigation tree pane, click on **\\155.79.87.13\data** and browse to **Tools\SDE** and double-click on **155.79.87.13 Vector NT.sde**
   - This is the direct connection to the LRB EGIS data.
   - It contains the SDSFIE data structure to support all types of database. At the current type, most of the structure is an empty shell.
   - As content is added to the EGIS database, you will be able to view it here. We will use tools in the following lessons to make it easier to locate what data is available through the database.
   - You can rename this connection by right-clicking on the entry and select **Rename**.


Connect to Folder
Choose the folder to which you want to connect:
\\155.79.87.13\data\
3
My Computer
Local Disk (C:)
DVD-RW Drive (D:)
k5opjrd3 on 'sammfs01\op' (K:)
apps on 'ITC - File Server For LM, OP, IM
common2 on 'ITC - File Server For LM, OI
op-m on 'ITC - File Server For LM, OP, IM
data on 'SAM-APGIS (sam-apgis)' (P:)
comn_all on 'ITC - File Server For LM, OP
comn_div on 'ITC - File Server For LM, OI
OK
Cancel

Exercise A: Accessing Buffalo District GIS Data

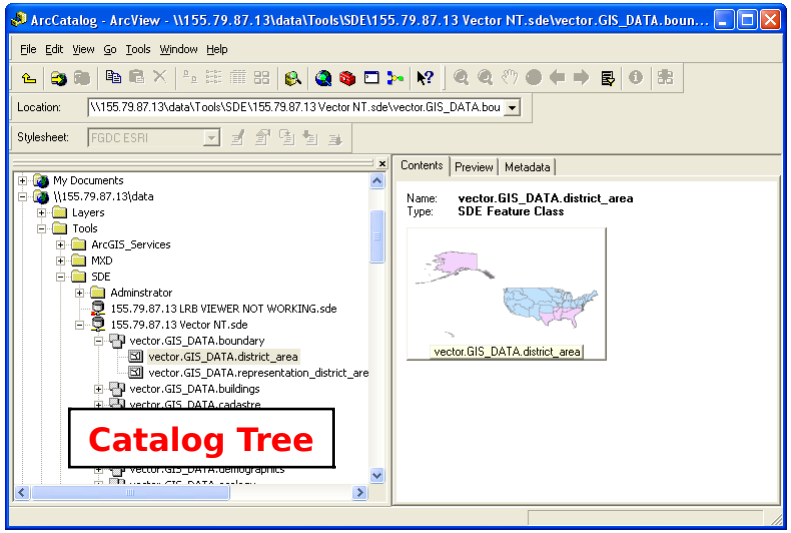
Now that you are connected to the LRB EGIS database, click the "+" sign to expand the directory to view the available data files.

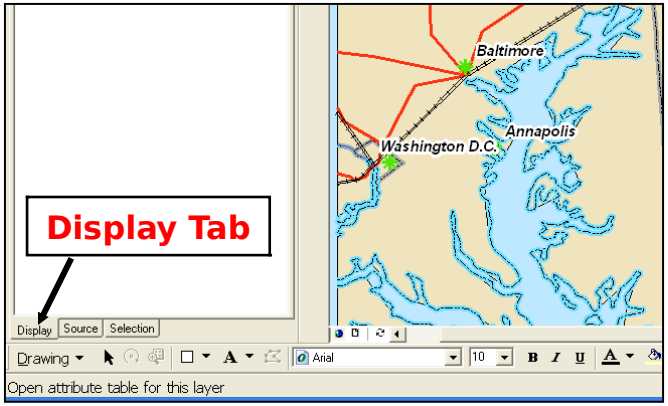

ArcCatalog - ArcView - \\155.79.87.13\data\Tools\SDE\155.79.87.13 Vector NT.sde\vector.GIS_DATA.flora\vector.GIS_DATA.aquatic_vegetation_area
Empty feature class
Database feature datasets & classes

Exercise A: Accessing Buffalo District GIS Data

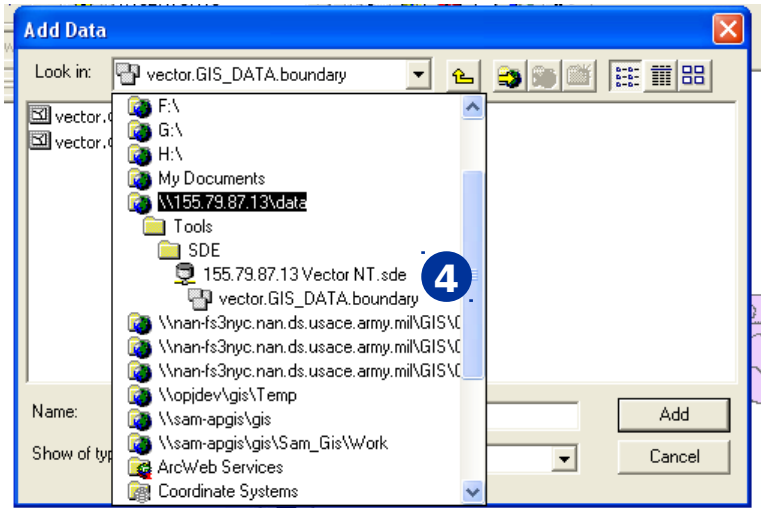
Adding Data from the eGIS database in ArcCatalog

1. Open ArcCatalog and ArcMap and arrange the windows so that you can see both on the screen.
2. In the Catalog Tree, navigate to the layer you want to add to the map.
   - ❑ Browse to LRB EGIS connection.
   - ❑ Using the + and – signs, expand or collapse directories or feature datasets.
3. Click and drag the layer you want from ArcCatalog.
   - ❑ Browse to **vector.GIS_DATA.boundary** feature dataset
   - ❑ Select **vector.GIS_DATA.district_area**
4. Drop the layer over the *map display* or *table of contents* in ArcMap. The data layer will be drawn in the active view.
   - ❑ If 'dropping' the layer into the table of contents, ensure the "Display" tab is active.





Exercise A: Accessing Buffalo District GIS Data



Adding a layer using the Add Data button

1. Start ArcMap:

   Start → Programs → ArcGIS → ArcMap.
2. Open a new or existing file that you want to add data to.
3. Click the Add Data button.
4. In the Add Data window, click the **Look in:** dropdown arrow and navigate to the LRB EGIS database location.
5. Browse through the available datasets and click to select (Shift or Ctrl to select multiple) the desired feature class.
6. Click Add.

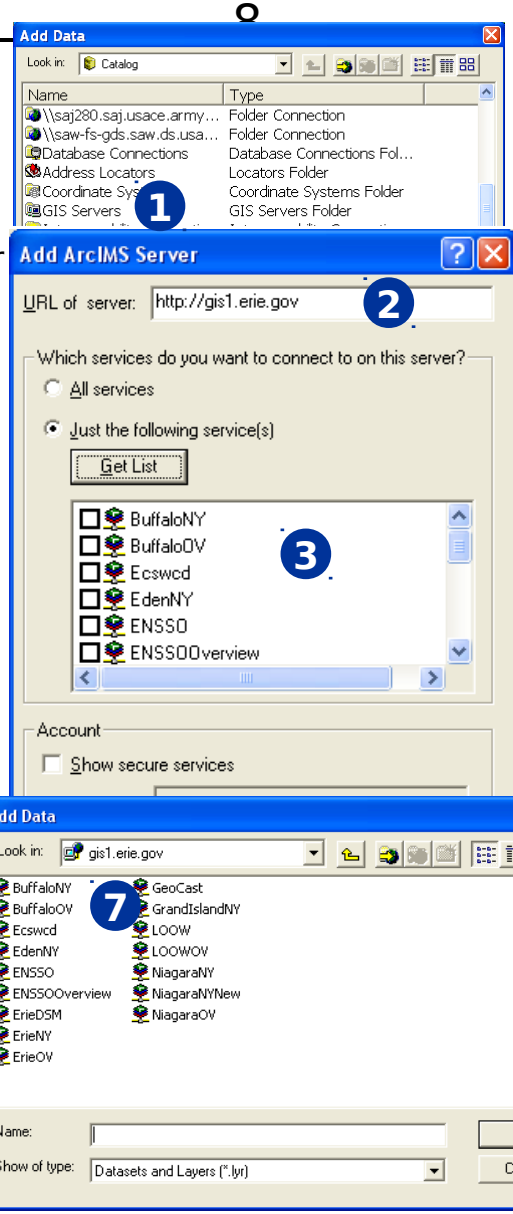
Exercise B: Accessing Public Data Sources

ArcIMS/Web Mapping (WMS) Services

To access services provided by an ArcGIS, ArcIMS, or Open Geospatial Consortium, Inc (OGC) Web Mapping Service (WMS) server, you make a connection to it in the ArcCatalog GIS Servers folder. To connect to either a server over the Internet, you must provide the Universal Resource Locator (URL) that uniquely identifies the server on the Internet. For ArcGIS Servers, you can also connect over your local network; to connect, you must provide a local area network (LAN) address, such as the name of the computer.

Connecting to an ArcIMS Server

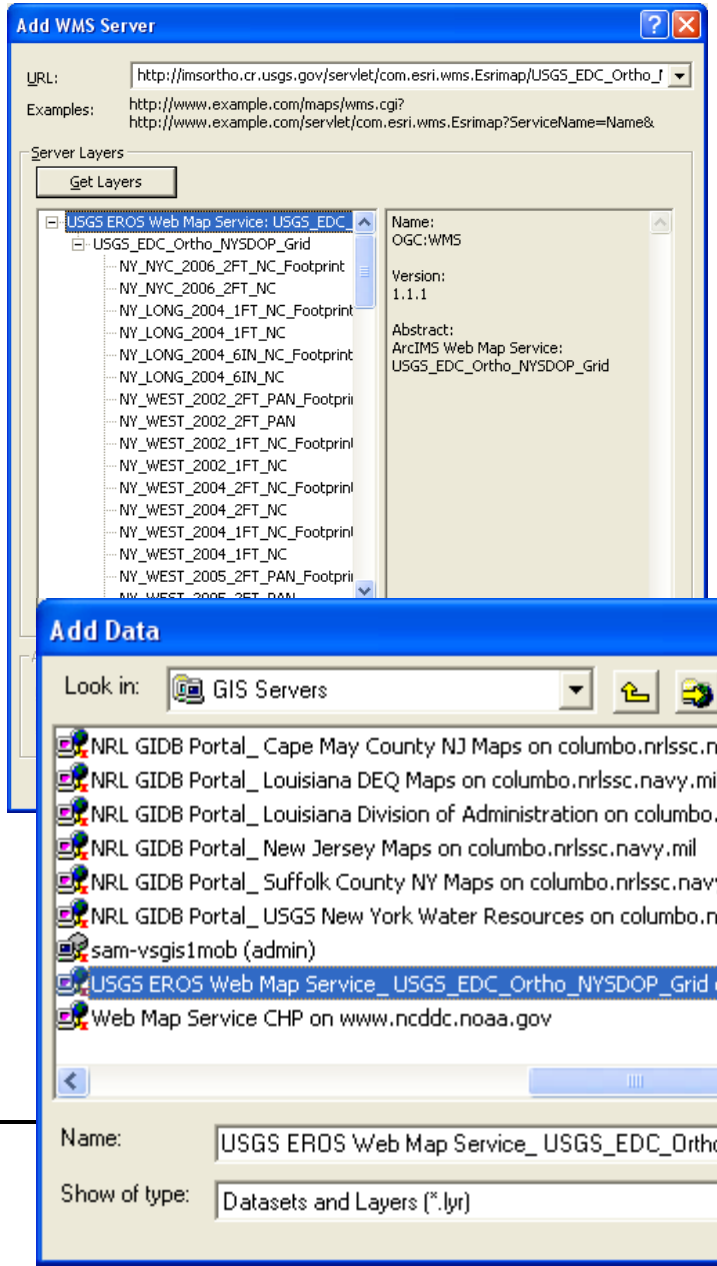
1. Click on the Add Data tool in ArcMap. Browse to the option, double-click on **GIS Servers**, then double-click to select **Add ArcIMS Server**.
2. In the dialog box that appears, type in the URL of the Internet Server to which you want to connect.
   - ☐ Enter **http://gis1.erie.gov**
3. To access particular services on this server, click **Get List**. A list of all services that are available on the server appears.
   - ☐ For this example, Click the "All Services" option to add a connection to all of Erie County map services.
4. Click OK.
5. To add this data into the view, using the Add Data button, browse to **GIS Servers**
6. Double-click to select **http://gis1.erie.gov**
7. Select **BuffaloNY** and click **Add**. This will automatically load the data served on the internet into your mapping display. If prompted, select "OK to
   All" to load data into your data frame.



Exercise B: Accessing Public Data Sources

Connecting to an WMS Server

1. Click on the Add Data tool in ArcMap. Browse to the option, double-click on **GIS Servers**, then double-click to select **Add WMS Server**.
2. In this training will be connect to the orthoimagery that is collected and distribute by NY State. Enter **http://imsortho.cr.usgs.gov/servlet/com.esri.wms.Esrimap/USGS_EDC_Ortho_NYSDOP_Grid?** (don't forget the question mark) in the URL text box.
3. Click the **Get Layers** button to view the data that is available in this service.
4. Click **OK** to retain this WMS connection.
5. To add this data into the view, using the Add Data button, browse to **GIS Servers**
6. Locate the **USGS EROS Web Map Service**. Click Add to add the data into the mapping display.



Exercise B: Accessing Public Data Sources

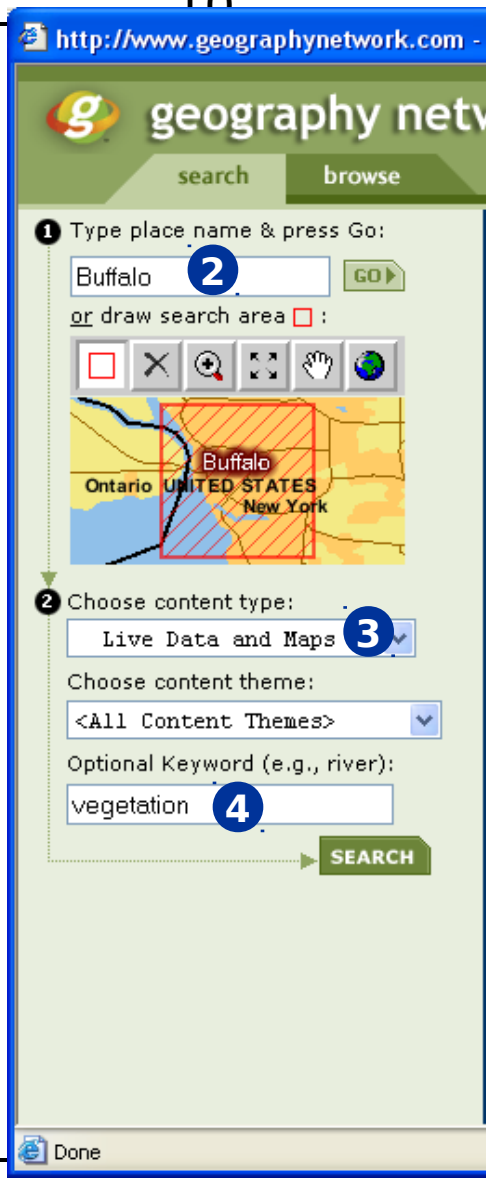
About adding data from the Internet

The Internet is a vast resource for geographic data. The Add Data from Internet option in ArcMap allows you to go directly to any Web site you choose, using a browser to explore **Metadata Explorer** sites. Generally, the data you add to your map is accessed directly from the organization providing the data.

An example of a widely used source is the Geography Network (www.geographynetwork.com). The Geography Network is a global community of data providers committed to making geographic content available to the public. Published from sites around the world, it gives you immediate access to the latest maps, data, and related services over the Internet. Use the Geography Network to search for and explore maps and other geographic content. When you find what you want, you can add it directly to your map in ArcMap.

Adding Internet data from the Geography Network

1. With **Internet Explorer**, browse to http://www.geographynetwork.com
2. The Geography Network Explorer lets you search for data by geographic location, data theme, and keyword. You can also click the Browse tab to look through the available data according to who publishes it, and so on.
   - ☐ Search for place name, **Buffalo**. Click **Go**. Notice the inset map will zoom to the region and place a red box of the area of interest.
3. Choose **Live Data and Maps** as the Content type.
4. Enter '**vegetation**' as the optional keyword.
5. Click **Search**.



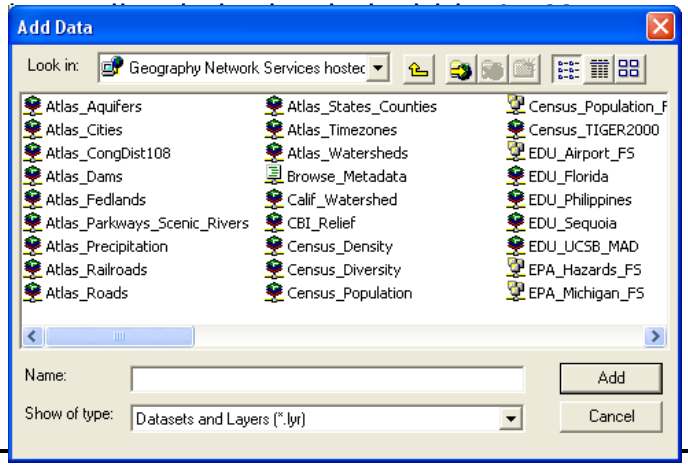
Exercise B: Accessing Public Data Sources

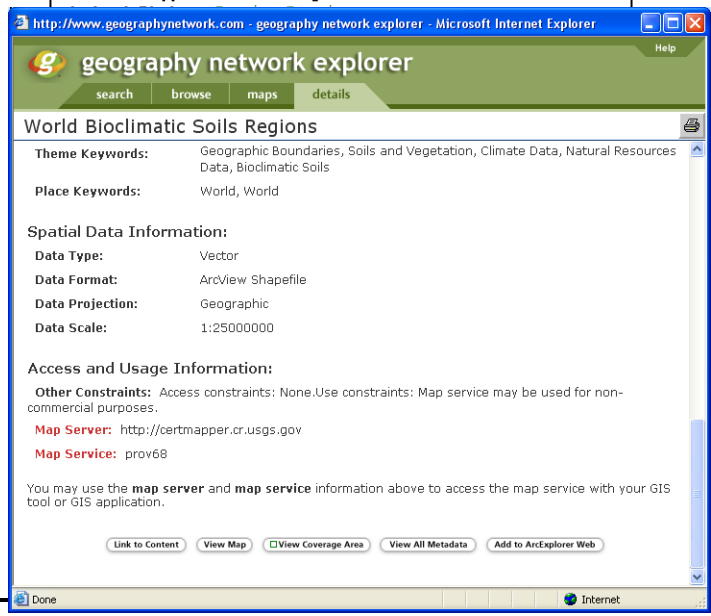
1. All services published to the Geography Networks that meet your search criteria will be display is the results pane. If you would like to view the contents of the data with the only viewer, click the Add to ArcExplorer Web button.

2. To view addition information, including the URL of the map server and service name, click the View Details button. Once the values for the service are known, the steps in the previous exercise can be used to add data directly into ArcMap.

3. The Geography Network always have direct access to known mapping services within ArcMap. Using the **Add Data** tool, select **GIS Servers**. Double-click on Geography Network Services hosted by ESRI. This will provide a list of common web services that can

Records Found: 10
Content Found by Search
Live Data and Maps
Publisher: ESRI
Content Title: World Bioclimatic Soils Regions
Coverage Area: World
Map Scale: 1:25000000
Service Type: ArcIMS Image Service
Latest Status: Service Running
Link to Content
View Details
View Map
Add to ArcExplorer Web
Publisher: U.S. Geological Survey
Content Title: National Land Cover Dataset - NLCD
Coverage Area: 48 Conterminous United States
Resolution: X Axis - 1.0, Y Axis - 1.0, Units - arc-seconds
Service Type: ArcIMS Image Service




http://www.geographynetwork.com - geography network explorer - Microsoft Internet Explorer
geography network explorer
search
browse
maps
details
World Bioclimatic Soils Regions
Theme Keywords: Geographic Boundaries, Soils and Vegetation, Climate Data, Natural Resources Data, Bioclimatic Soils
Place Keywords: World, World
Spatial Data Information:
Data Type: Vector
Data Format: ArcView Shapefile
Data Projection: Geographic
Data Scale: 1:25000000
Access and Usage Information:
Other Constraints: Access constraints: None.Use constraints: Map service may be used for non-commercial purposes.
Map Server: http://certmapper.cr.usgs.gov
Map Service: prov68
You may use the map server and map service information above to access the map service with your GIS tool or GIS application.
Link to Content
View Map
View Coverage Area
View All Metadata
Add to ArcExplorer Web
Done
Internet

Exercise B: Accessing Public Data Sources

I added data to my data frame, but the layers do not line up. Why?

- In most cases the problem will be that the data that you are attempting to overlay may be in different projections. When working with spatial data, it is important to know the projection of your data. By establishing a baseline projection, this will ensure the data will overlay properly.
- Projection—A mathematical formula that transforms feature locations from the earth's curved surface to a map's flat surface. Projections can cause distortions in distance, area, shape, and direction; all projections have some distortion. Therefore, the projection type is often placed on the map to help readers determine the accuracy of the measurement information they get from

Under the **Maps & Data** page of the **eCoastal website**, http://eCoastal.usace.army.mil, is a listing of coastal related map services that are available for viewing and downloading in either a web or ArcGIS desktop environment. You can use the skills learned in this lesson to access these datasets.

You can also search the internet with keywords such as WMS, GIS Server, or ArcIMS to locate potential data services.

USACE Main
Who We Are
Missions
History
Related Links
Kids Corner
US Army Corps of Engineers®
eCoastal
RELEVANT
READY
RESPONSIVE
RELIABLE
Proudly serving the Armed Forces and the Nation now and in the future.
eCoastal Home
Maps & Data
Training
Tools & Software
Documentation
Contact Us
What's New...
Getting Started
Frequently Asked Questions
Related Programs
Want to Add Data to ArcMap?
To view instructions on how to download or connect to web services using ESRI's ArcMap, click HERE.
The connection details for each of the map services are listed to the right.
Enterprise GIS Data
A fundamental principle of an enterprise GIS, such as eCoastal, is to link to and leverage existing spatial datasets into our local projects. These links have been provided to assist users in locating existing coastal related datasets.
To have a link posted on this page, please place a request on the Contact Us page.
Maps & Data
The following list of map services are produced by USACE Districts hosting an eCoastal program with publicly accesible map services. This page also includes a list to a number of additional online coastal mapping services that are hosted by other agencies.
USACE eCoastal Program Map Services & Data
GIWW Coastal GIS Basemap
Server URL: http://gis.sam.usace.army.mil
Service Name: C000
Availability: Online
Host: CESAM, Spatial Data Branch
Open Map
In October 1999, the US Army Engineer District, Mobile (SAM), initiated the USACE Northern Gulf of Mexico Regional Sediment Management Demonstration Program. The goal of the demonstration program is to change the paradigm of project specific management to focusing on a regional approach in which the USACE as well as state and local agencies stop managing projects and begin "managing the sand." The product of the RSM demonstration program is a Regional Sediment Management Plan consisting of a calibrated regional sediment budget, a calibrated numerical regional prediction system, and a regional data management and Geographic Information System. This GIS also fullfills a requirement of the Florida Department of Environmental Protection by providing baseline information required for re-certification of Gulf Intracoastal Waterway.
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Exercise C: Working with Layer Files

It takes time to analyze a feature class's attributes and symbolize its features so that people will readily understand the information within the data. After finalizing the symbolization and labeling of a layer, you can save it outside the map as a layer file. This allows a user to be able to load the data into ArcMap application and it have the same look and feel every time it is loaded.

A layer is what you see in the ArcMap table of contents. A layer contains:

- the pathname or link to the dataset (local or remote)
- symbology information
- feature or row selection information (definition queries)
- metadata can be attached to a layer file.

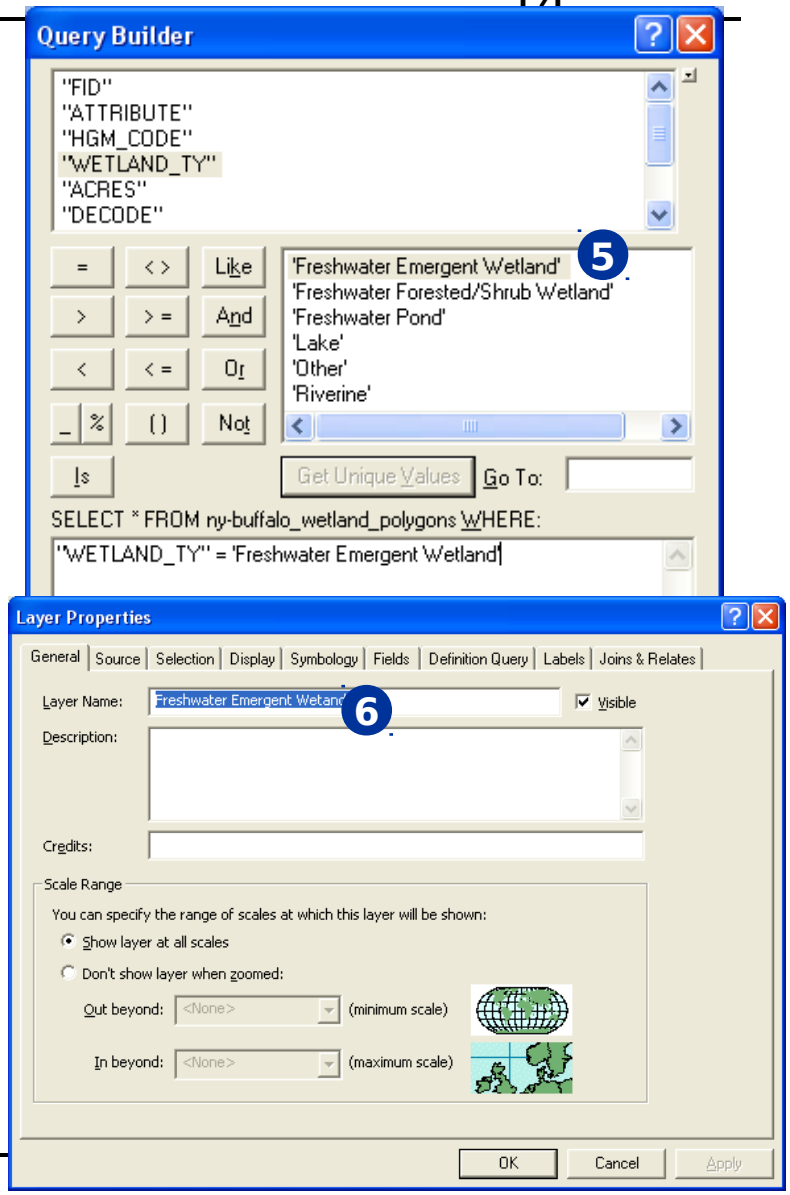
Notes:

When building a layer file from a Geodatabase, it is important to remember what user from which the layer files are being built. When logging into the eGIS GDB, use the appropriate user for the task. If edits need to be done on the GDB, log in as the editor, and build your layer file form this user. However, if you are simply viewing the data, log in as the viewer, and then built the layer file from the viewer.

Under the eCoastal data model all data loaded into the eGIS GDB will have a layer file built. That layer file should have associated metadata and both should be stored in the appropriate project folder. All layer files should have the following properties built into them: a Definition Query, unique symbology, a common name, and scale dependent rendering set.

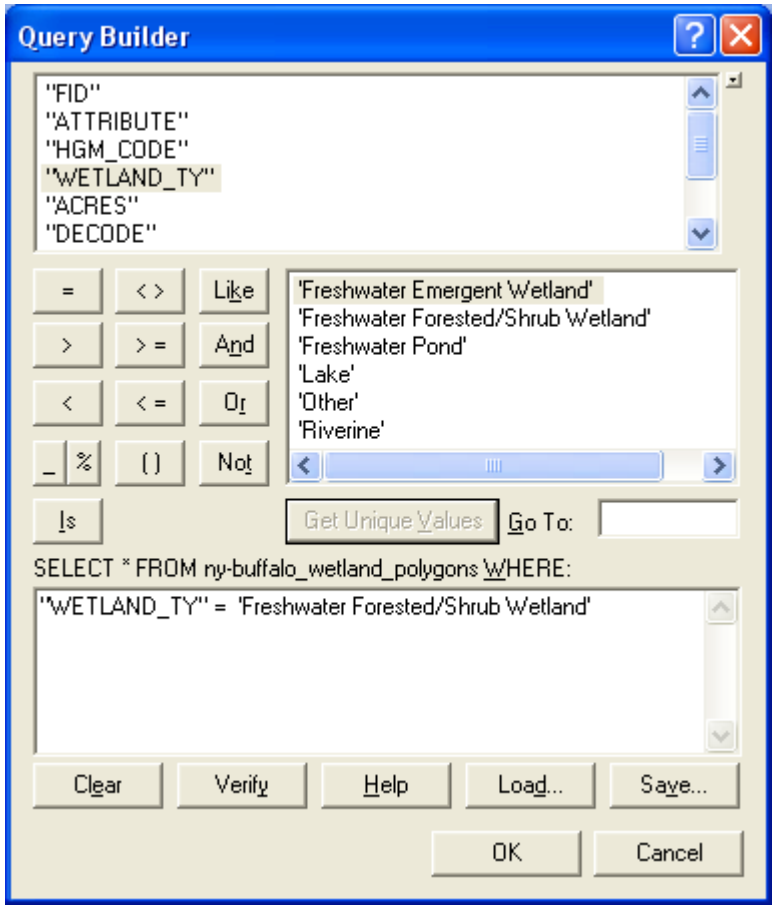
Exercise C: Working with Layer Files

1. In ArcMap, add in **ny-buffalo_wetland_polygons.shp** from the Training/Data directory from your local drive.
   - ❑ Right-click on the layer and select “Properties”
   - ❑ Click on the “**Definition Query**” tab. We will create a query to extract a portion of this layer, so it can be easily displayed in ArcMap.
2. Build the Query string for the layer.
   1. Click on the “Query Builder” button
   2. Double-click on “WETLAND_TY”. Notice it will appear at the bottom of your form.
   3. Click on the “=“ button.
   4. Click the “**Get Unique Values**” button.
   5. Scroll down to locate the “Freshwater Emergent Wetland”. Double-click on this record and click OK.
   6. On the “**General**” tab, rename the layer to “DI Ferry Channel”. Click OK on the Layer properties form.
   7. Notice that the channels layer is redrawn, but this time with only the *Freshwater Emergent Wetland* in view.
   8. Right-click on the **Freshwater Emergent Wetland** in the Tables of Contents and select “Save as Layer File”.
      - ❑ Browse to the Training directory and save this layer file.



Exercise C: Working with Layer Files

1. In the Table of Contents, right-click on the **Freshwater Emergent Wetland** layer and select "**Copy**".
2. Right-Click on the Data Frame name in the Table of Contents and select "**Paste Layer**".
3. Right-Click on this duplicate layer and view it's **Properties**.
   - ❑ On the "**General**" tab, rename this layer to Freshwater Forested/Shrub Wetland".
   - ❑ Click on the "**Definition Query**" tab, and clear the existing query by selecting and deleting the contents.
4. Create a new definition query to filter for only the Freshwater Forested/Shrub Wetland features.
   - ❑ Click on the Query Builder button
   - ❑ Create a new SQL query based on WETLAND_TY.
   - ❑ Right-click on the new layer and save as a layer file.
5. Layer files can be used to filter large feature classes and provide a consistent symbology display. In these 2 examples, we created 2 different views of the same dataset. This technique can be used to assist in the leveraging of datasets across numerous projects, without having to recreate a copy of the spatial data.



Exercise D: Using the eCoastal: DataViewer Toolbar

The Data Viewer toolbar contains a number of tools that can be use in your ArcMap session. These tools are designed to assist you with common functions, like loading data, building a map, or rearranging the items in your table of contents. Our first step is to connect to the EGIS database in LRB.

The following pages provide a description of each of the tools available on this toolbar. In this class we will focus on the functions available in the Database Connection and Data Picker Tool.

Exercise D: Using the eCoastal: DataViewer Toolbar

	Toolbar: eCoastal DataViewer **Tool: Database Connections** Function: This form allows a user to select a connection to the GIS Management Database. Additionally, references for spatial and non-spatial servers are established here. A working "scratch" location must also be set here to allow for a working directory on a user's local computer.		**Toolbar: eCoastal DataViewer** **Tool: Data Picker** Function: Data indexed in the GIS Management Database can be easily accessed using the Data Picker tool. This GUI interface allows users of all user levels the ability to quickly search available layers and directly add items to the Table of Contents in ArcMap without prior knowledge of the Spatial Data Standards to browse the geodatabase with little introduction to the system architecture.
	Toolbar: eCoastal DataViewer **Tool: Zoom To Layer** Function: Allows a user to quickly zoom to the extents of the layer in the table of contents selected by the user. The Zoom to Layer tool on the eGIS Data Viewer toolbar is different than the standard 'Zoom to Layer' function as it honors the spatial extent of the definition query used in the Layer file.		**Toolbar: eCoastal DataViewer** **Tool: Create Map Layout** Function: Allows a user to quickly and efficiently create a map layout suitable for printing and or plotting. This tool simplifies map printing by providing a user the option to select a printing device and then select a paper size. Pre-defined map scales are also available for choosing. Each change updates the map layout.

Exercise D: Using the eCoastal: DataViewer Toolbar

	Toolbar: eCoastal DataViewer **Tool: Find By Attribute** Function: Allows a user to search attributes contained in a vector feature layer by selecting from a list of distinct attribute values queried from the selected layer. Double-clicking on a value from the search list locates to the first feature by that value.		**Toolbar: eCoastal DataViewer** **Tool: Sort Layers** Function: Allows a user to sort all the layers in the table of contents alphabetically. The tool will honor grouped layers of any level.
	Toolbar: eCoastal DataViewer **Tool: Move Layers Up** Function: Allows a user to move any selected layers to the top of the table of contents.		**Toolbar: eCoastal DataViewer** **Tool: Move Layers Down** Function: Allows a user to move any selected layers to the bottom of the table of contents.
	Toolbar: eCoastal DataViewer **Tool: Delete Multiple Fields** Function: Allows a user to select a shape file on their computer. Once selected, a list of attribute fields is created from the shape file for final selection. All selected fields in the shape file are then deleted.		**Toolbar: eCoastal DataViewer** **Tool: Add X,Y Coordinates** Function: Automatically creates and populates an X and Y value column(s) in the attribute table of a selected vector layer using the coordinate system of the Data Frame properties. The Add XY tool is useful if a vector point layer was created using a "heads-up digitizing" technique or if a point data layer was acquired with no XY coordinates defined in the attribute table.

Exercise D: Using the eCoastal: DataViewer Toolbar

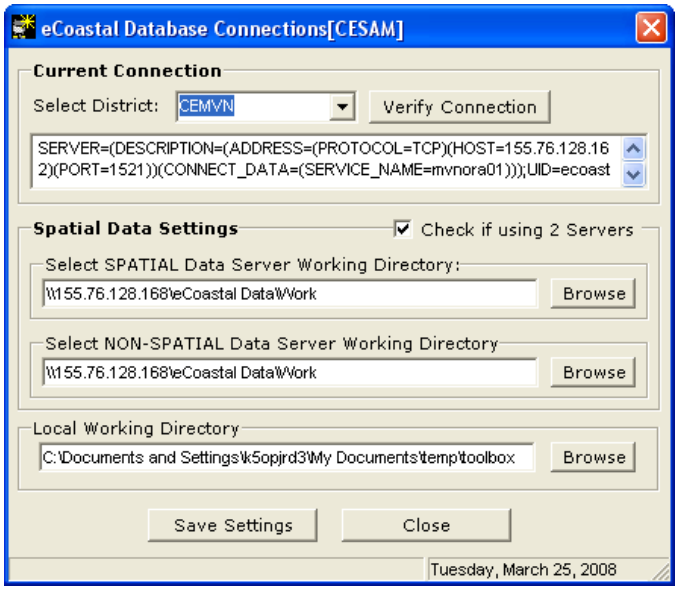
	Toolbar: eCoastal DataViewer **Tool: Import Excel as Points** Function: This tool imports from a selected Excel spreadsheet a worksheet that contains columns of data that can be queried as X and Y point data. The tool imports the data and creates a point feature layer into the map. Additional columns of data in the spreadsheet may be selected and will be included in the feature layer as attribute data.		**Toolbar: eCoastal DataViewer** **Tool: Export to Text File** Function: Allows users to easily export the feature attributes of a feature map layer to an ASCII comma-delimited text file. The tool can also be used to export the XY vertices of a polygon or polyline feature class to a text file. Additionally if the feature class is 3D, the Z value of the geometry is also included.
	Toolbar: eCoastal DataViewer **Tool: Polygon Area Tool** Function: Allows users to calculate the area, perimeter, and centroid of features in a polygon feature layer. The tool will also work with data that is in a geographic coordinate system.		**Toolbar: eCoastal DataViewer** **Tool: Graphics to Features** Function: This tool allows users to convert graphic elements (polygon, polyline, or point types) in the map to permanent feature classes of the same type of geometry.

Exercise D: Using the eCoastal: DataViewer Toolbar

	Toolbar: eCoastal DataViewer **Tool: Bounding Polygon Tool** Function: Bounding polygons are used to define the extent of surfaces to be calculated with the Spatial Analyst extension. This tool allows the user to create a boundary based on a feature point selection, and it creates a polygon graphic that surrounds the feature selection. The bounding polygon is a convex hull polygon.		**Toolbar: eCoastal DataViewer** **Tool: Compare Tool** Function: The main function of this tool, although not the only function, is to search the specified feature class for duplicate geometry. Any duplicate features are marked as duplicate with a Duplicate column that is added to the feature attribute table.
	Toolbar: eCoastal DataViewer **Tool: Make PointZ Shape** Function: Allows a user to select an ASCII comma-delimited text file that contains as minimum X, Y, and Z values that typically represent a location and an elevation. The resultant point shape file is z-aware, meaning it has 3D geometry.		**Toolbar: eCoastal DataViewer** **Tool: Make PolylineZ Shape** Function: Allows a user to select an ASCII comma-delimited text file that contains as minimum X, Y, and Z values that typically represent a location and an elevation. The X and Y values are used to create the polyline vertices. The resultant shape file is z-aware, meaning it has 3D geometry.
	Toolbar: eCoastal DataViewer **Tool: Polyline Tools** Function: The polyline tools are a collection of tools that modify polylines in a shapefile or create new features from existing features.		**Toolbar: eCoastal DataViewer** **Tool: Polygon to Polyline Tool** Function: This tool converts the selected polygon feature to a polyline feature.

Exercise D: Using the eCoastal: DataViewer Toolbar

1. Click on the **Database Connection** tool on the toolbar. This tool allows you to connect to any participating District's enterprise GIS database. For this lesson, we will connect to the **CELRB** District. Click on the **Verify Connection** button, then **Save Settings**.
   - ❑ The Buffalo District uses 1 server to support the spatial data. **Do not check** the "Check if 2 servers" option.
   - ❑ Be sure to set your local working directory. This is the location on your personal computer where temporary files are created by the eCoastal tools.



2. USACE users can directly connect to any other District who actively participates in the eCoastal program. Once connected, the user can add any data that was made accessible for the **Data Picker** tool.

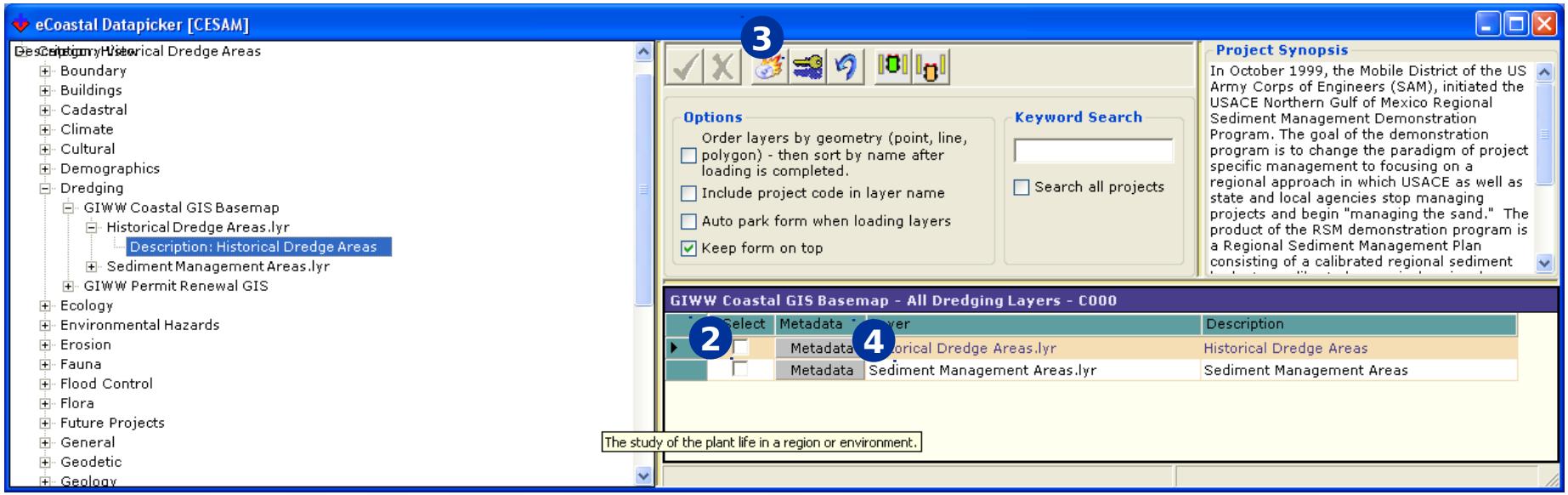
Exercise D: Using the eCoastal: DataViewer Toolbar

1. Click on the **Data Picker** tool. This button will open a form that reads a reference to a listing of data contained in the EGIS database, or published links to other agency's data. This information is provided in *common names*, so it is easy to search and locate desired datasets.

2. The Data Picker project view shows a "tree view" of the projects stored in the database. Every project seen under the Project View node will have two sub nodes. They are the ***Project*** node and the ***Basemap Layers*** node.
    1. When the Basemap Layers node is selected all of the project's basemap layers are loaded into the grid display. All basemap layers, when loaded in the grid display, are checked by default.
    2. If the Project node is selected all layers are loaded are loaded in the grid display, but are initially unchecked.

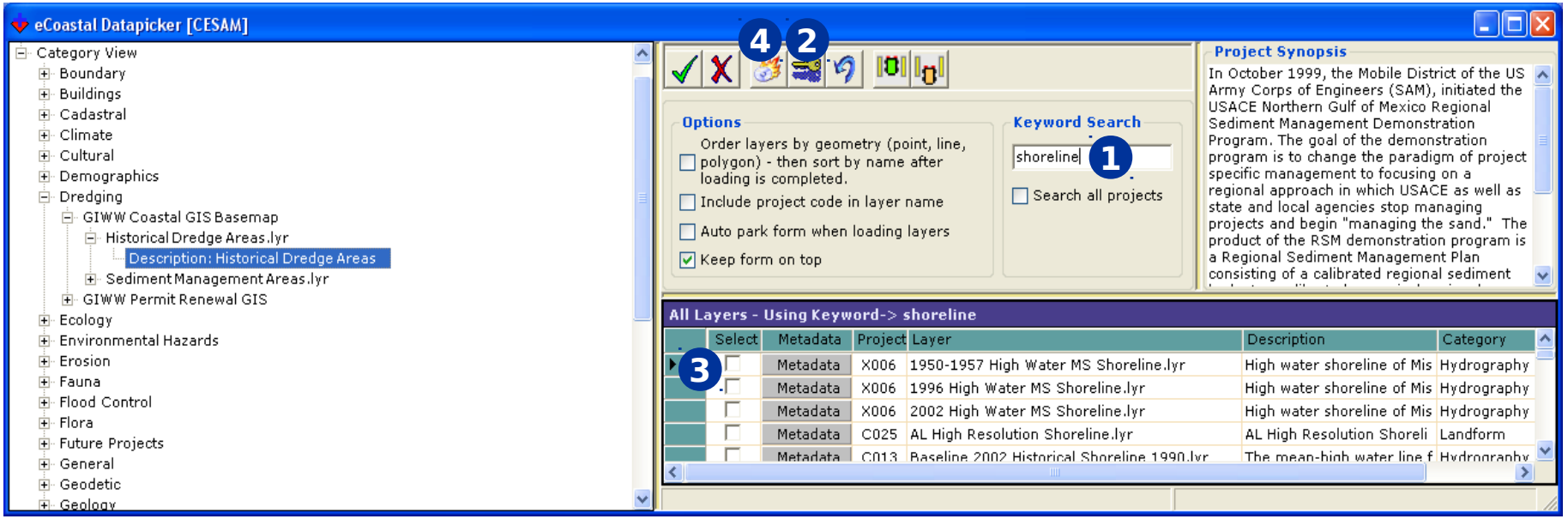
Exercise D: Using the eCoastal: DataViewer Toolbar

1. In the left pane, you can browse published datasets by *Project Name* or *Category*.
2. To load data into your ArcMap session, first click the **checkbox** in front of desired layer(s).
3. Then click the **Load Data** button.
4. If you would like to see additional information about the selected layer, click the **Metadata** button next to the layer name.


eCoastal Datapicker [CESAM]
Boundary
Buildings
Cadastral
Climate
Cultural
Demographics
Dredging
GIWW Coastal GIS Basemap
Historical Dredge Areas.lyr
Description: Historical Dredge Areas
Sediment Management Areas.lyr
GIWW Permit Renewal GIS
Ecology
Environmental Hazards
Erosion
Fauna
Flood Control
Flora
Future Projects
General
Geodetic
Geology
3
Options
Order layers by geometry (point, line, polygon) - then sort by name after loading is completed.
Include project code in layer name
Auto park form when loading layers
Keep form on top
Keyword Search
Search all projects
Project Synopsis
In October 1999, the Mobile District of the US Army Corps of Engineers (SAM), initiated the USACE Northern Gulf of Mexico Regional Sediment Management Demonstration Program. The goal of the demonstration program is to change the paradigm of project specific management to focusing on a regional approach in which USACE as well as state and local agencies stop managing projects and begin "managing the sand." The product of the RSM demonstration program is a Regional Sediment Management Plan consisting of a calibrated regional sediment
GIWW Coastal GIS Basemap - All Dredging Layers - C000
Select
Metadata
Description
2
4
Metadata
Historical Dredge Areas
Historical Dredge Areas.lyr
Metadata
Sediment Management Areas.lyr
Sediment Management Areas
The study of the plant life in a region or environment.

Exercise D: Using the eCoastal: DataViewer Toolbar

1. If you are not sure what Project of Category your desired datasets is matched to, enter a search word in the **Keyword Search** textbox.
2. Click the **Keyword Search button.**
3. To load data into your ArcMap session, first click the **checkbox** in front of desired layer(s).
4. Then click the **Load Data** button.


eCoastal Datapicker [CESAM]
Category View
Boundary
Buildings
Cadastral
Climate
Cultural
Demographics
Dredging
GIWW Coastal GIS Basemap
Historical Dredge Areas.lyr
Description: Historical Dredge Areas
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4
2
Options
Order layers by geometry (point, line, polygon) - then sort by name after loading is completed.
Include project code in layer name
Auto park form when loading layers
Keep form on top
Keyword Search
shoreline
1
Search all projects
Project Synopsis
In October 1999, the Mobile District of the US Army Corps of Engineers (SAM), initiated the USACE Northern Gulf of Mexico Regional Sediment Management Demonstration Program. The goal of the demonstration program is to change the paradigm of project specific management to focusing on a regional approach in which USACE as well as state and local agencies stop managing projects and begin "managing the sand." The product of the RSM demonstration program is a Regional Sediment Management Plan consisting of a calibrated regional sediment
All Layers - Using Keyword-> shoreline
3
Select
Metadata
Project
Layer
Description
Category
Metadata X006 1950-1957 High Water MS Shoreline.lyr High water shoreline of Mis Hydrography
Metadata X006 1996 High Water MS Shoreline.lyr High water shoreline of Mis Hydrography
Metadata X006 2002 High Water MS Shoreline.lyr High water shoreline of Mis Hydrography
Metadata C025 AL High Resolution Shoreline.lyr AL High Resolution Shoreli Landform
Metadata C013 Baseline 2002 Historical Shoreline 1990.lyr The mean-high water line f Hydrography

Exercise D: Using the eCoastal: DataViewer Toolbar

As more projects become online at the Buffalo District, the data will be available in the Project list. Below is a list of projects that are currently accessible with the Data Picker Tool:

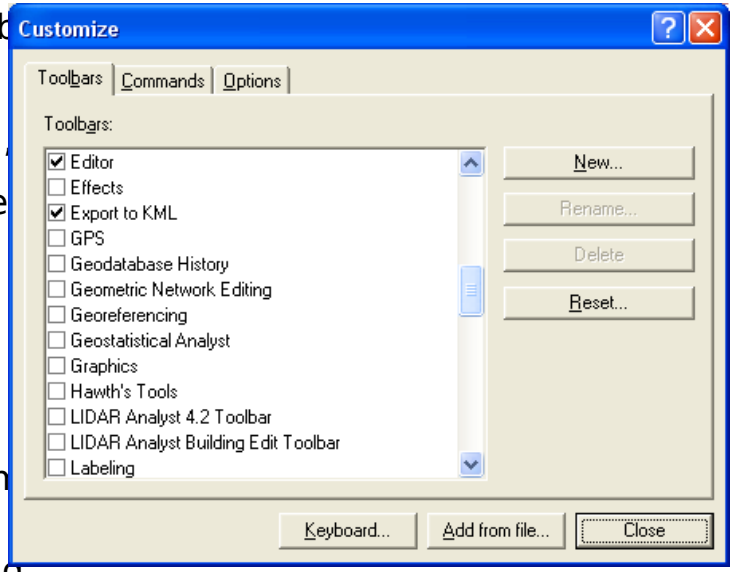
- (X000) USACE Basemap Data: District and Division Boundaries
- (X001) Basemap Data: Roads, Counties, Municipalities, etc.
- (C000) Cuyahoga River Channel
- (C001) Presque Isle State Park
- (C002) Cleveland Harbor
- (X002) Public Map Services: USGS Orthoimagery, Erie County Map Services - City of Buffalo, Town of Eden, Town of Grand Island, and Niagara County.

Exercise E: Viewing GIS Data in Google Earth

Export to KML is an extension developed for ArcGIS 9.x by the City of Portland, Bureau of Planning. The extension allows ArcGIS users to export GIS data in “keyhole markup language” (KML) format for viewing in Google Earth. Any point, polyline, or polygon dataset, in any defined projection, can be exported. Features can be exported as either 2-dimensional features, or 3D features "extruded" upwards b an attribute or z-value.

Export to KML is a free tool available for download from ESRI ArcScripts Website. If more advanced functions are neede products such as Arc2Earth may need to be purchased.

The following exercise will demonstrate how to convert GIS data into a format that is recognized by Google Earth.



1. In ArcMap, at the **NWI.lyr** file in the Table of Contents fron the training directory.
2. Turn on the **Export to KML** toolbar in ArcMap, by selecting Tools → Customize. Click to select the Export to KML toolbar.
3. Click Close.

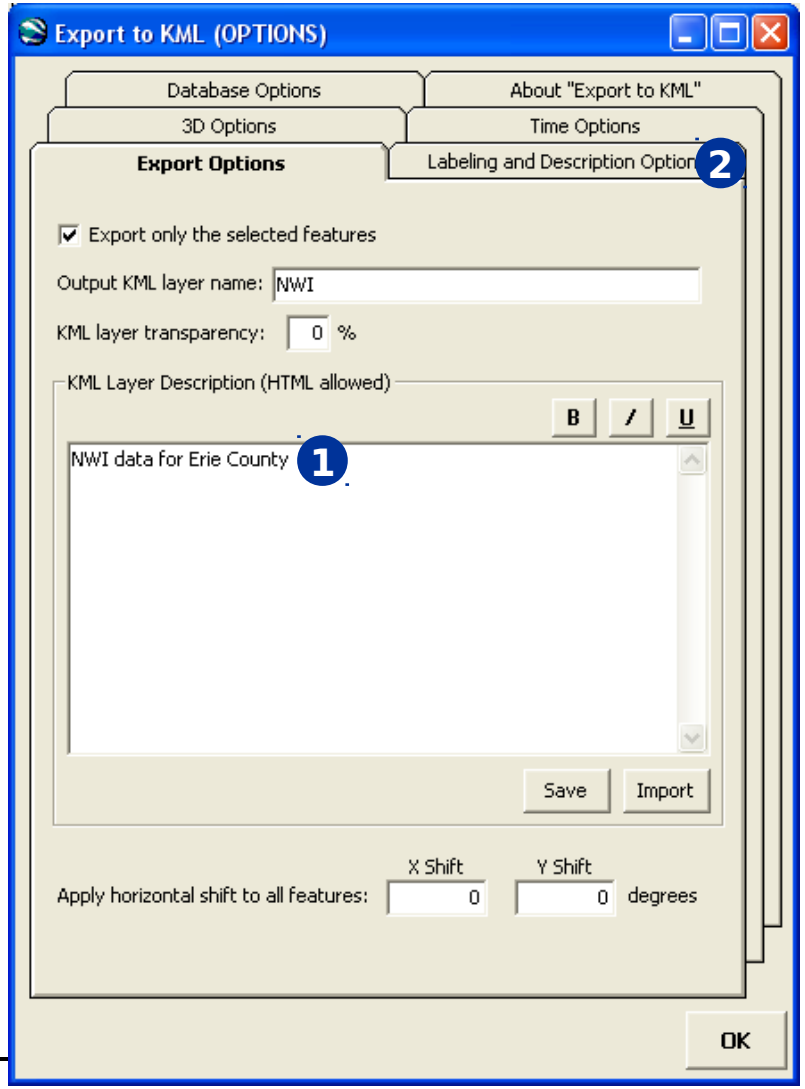
Exercise E: Viewing GIS Data in Google Earth

1. Click on the Export to KML Tool.
2. Select the NWI Layer.
3. To see labels in Google Earth, be sure to select what attribute should be used for labeling. For this example select "ATTRIBUTE".
4. Click on the folder icon, and browse to the training directory. Save this KML as NWI_Google.kml.
5. In this example we will also customize the 'identify results' window. So when a user clicks on a wetland polygon a pop-up will display supplying additional information related to that feature.
6. To access the customization options, click the **Options** button.

Exercise E: Viewing GIS Data in Google Earth

1. If you would like to provide additional information and detail on the data layer, it can be supplied in the 'KML Layer Description' .on the **Export Options** tab.

2. Click on the **Labeling and Description Options** tab.



Exercise E: Viewing GIS Data in Google Earth

1. Select “ATTRIBUTE” as the primary name for each feature.

2. Click on the **Add All Attributes** button. This function will put all of the attributes in the shapefile in the pop-up window in Google Earth.

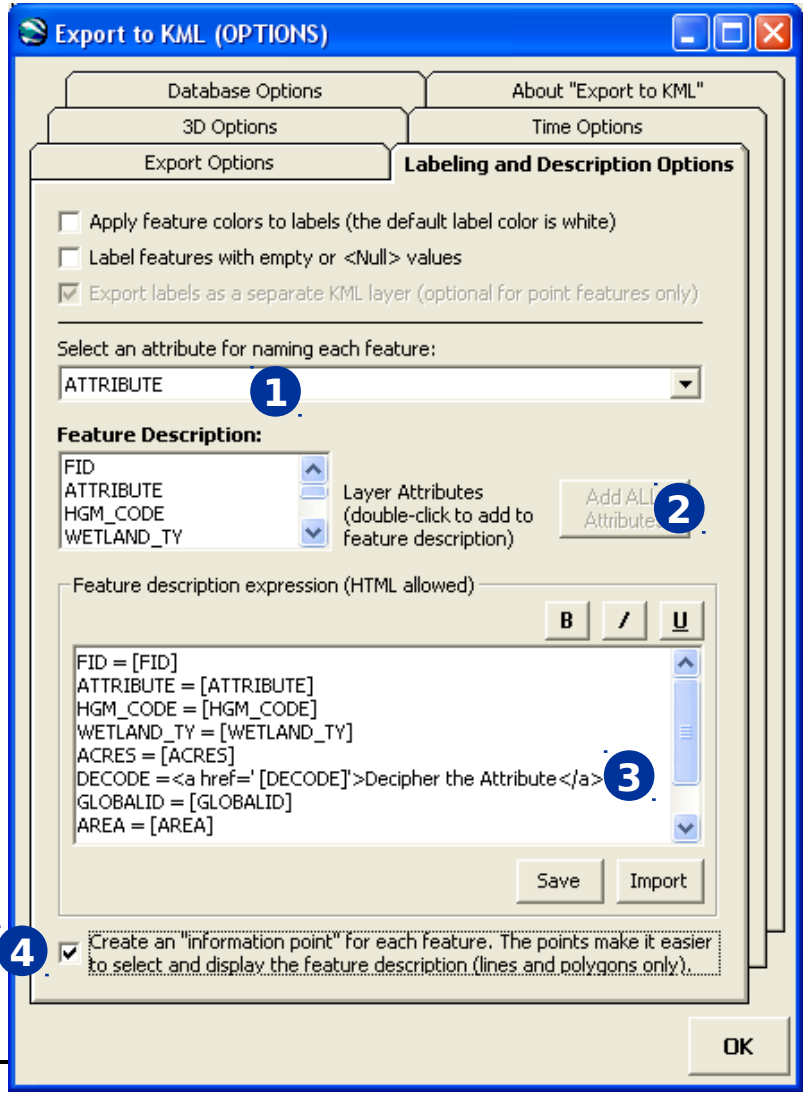
3. The Feature description box, allows you to customize how the users should view the pop-up window. HTML can be inserted in this box. HTML will allow you to apply formatting changes (making text bold, changing text color, etc.) and will also all you to insert hyperlinks.

   In the attribute table of the NWI shapefile, a URL was provide in the DECODE field. The URL is of a webpage that allows the user to decipher the assigned attribute code. We will extract the value of the DECODE field and use it to create a dynamic hyperlink within the pop-up window.

   Change the DECODE line to read:
   DECODE=Decipher the Attribute

4. If the geometry of the feature is a line or polygon it is helpful to add an information point to make it easier for the user to select and display feature description. Be sure to check this option.

5. Click OK. And Click OK again to build the Google Earth KML file.



Exercise E: Viewing GIS Data in Google Earth

1. Click YES to open the file in Google Earth.

2. By default, all labeling will automatically be turned on when the file is open in Google Earth. You can toggle this feature off in the Places frame.

3. Zoom into the Buffalo region, so you can see the individual features of the wetland polygons. Click on any of the information points.

4. The pop-up window will appear listing all of the attributes that we selected in ArcMap. Notice the name is in boldface and a hyperlink was added for the DECODE attribute.

5. Click on the "Decipher the Attribute" link. It will open a new window with the supplied URL from the data attributes.

6. If any changes are made into Google Earth to this KML file, to save changes right-click on the data layer and select Save As…